OIL SPILL DEBRIS SEPARATION TANK

Prepared by:

PRAIRIE REGIONAL OIL SPILL CONTAINMENT AND RECOVERY ADVISORY COMMITTEE RESEARCH AND DEVELOPMENT SUBCOMMITTEE

FEBRUARY, 1989

CANADIAN PETROLEUM ASSOCIATION

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(for recovered spilled fluids)

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Prairie Regional Oil Spill Containment
and Recovery Advisory Committee

Research and Development Sub Committee

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INTRODUCTION

The Research and Development Sub-committee of the Prairie Regional Oil Spill Containment and Recovery Advisory Committee has completed a project to design and build a separation tank to be used to handle spilled liquids collected during a spill response. The design drawing for this tank is included in the pouch at the back of this report. The tank has been constructed and is located in Drayton Valley. It has been used on several occasions and has performed well.

The purpose of the separation tank is to clean rocks, sticks, grass and other debris from recovered spillsite fluids, thereby enabling the majority of the resulting oil/water mixture to be processed through company facilities rather than being hauled to reclaimers.

The tank has been purchased by the Area "G" Co-op and is presently stored with the Area "G" equipment in Drayton Valley. Additional information can be obtained from John Prociuk (Amoco) 894-3601 or Dave Sitar (Mobil) 542-8300.

DESCRIPTION

The enclosed photographs show the separation tank.

Vacuum trucks, tank trucks or trash pumps can be used to transport recovered fluids to the tank. The inlet end of the tank has a series of removable expanded metal baskets and screens that remove the larger debris as it flows from the entry baskets into the subsequent three compartments.

The initial stage, i.e. two removable baskets, are designed to be cleaned on a rotational basis with an aluminum cleaning tool or winched out and dumped into a receptacle. A winch has been built into the tank.

The two screens separating the three compartments have been designed to be replaced "on the go" without having to stop the process. Once cleaned at the site, they can be reinserted when the other becomes clogged. If needed, filter material can be inserted in the screen to further clean the fine grasses, etc. when spilled produced water is being recovered. Clean out of the tank is simplified by the rounded bottom, removable screens and large dump gate.

An adjustable pickup pipe in the last compartment allows the cleaned fluid to be removed at varying depths.

Heating coils have been included in the two final compartment to enable the tank to be used in winter and to melt oil contaminated snow.

The tank has been used successfully on oil spills on primarily "solid" soil and grass, where the spilled product was flushed with hot water and recovered.

... /2

Also, it has been used successfully in cleaning debris from produced water recovered from muskeg and subsequently re-injected.

One limitation is when used to recover oil from "peat" type soils found in muskegs. The resulting mixture of peat and oil, which resembles liquid cement in thickness, could not be processed through the tank due to plugging of the screens.

The largest cost saving potential for the tank is when it can be used to clean recovered spill fluids to the point where the company's own facility can process the fluids. This reduces trucking costs, disposal fees and results in the company retaining the revenue from the sale of the product.

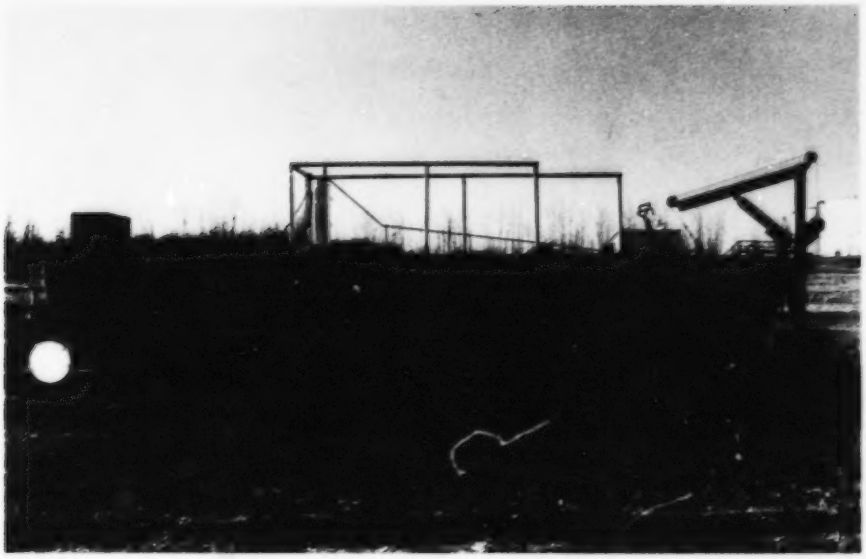


Plate 1. Side view of tank. Lifting winch on inlet end at right.

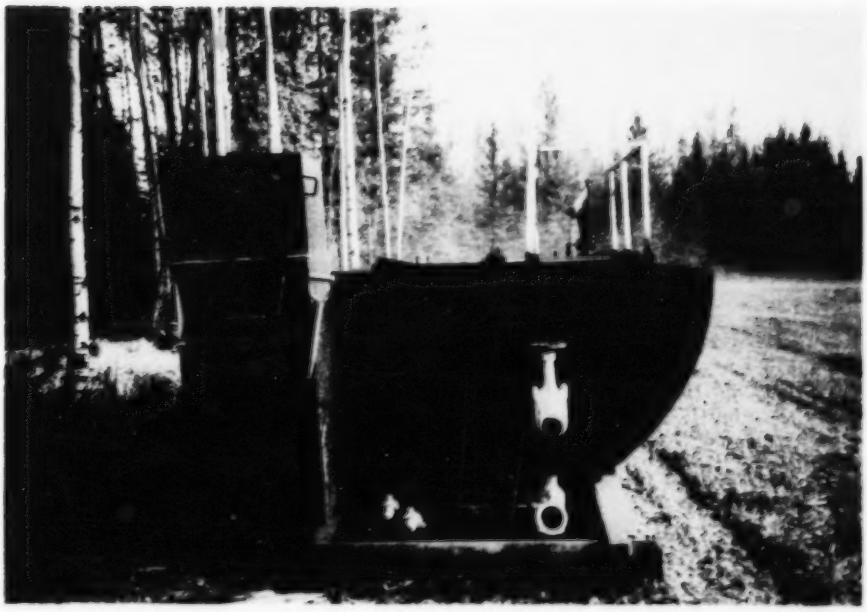


Plate 2. Discharge end of tank showing screens and shovel in storage compartment. Middle (adjustable) and bottom discharge pipes.

Plate 3. Two inlet baskets to capture larger debris

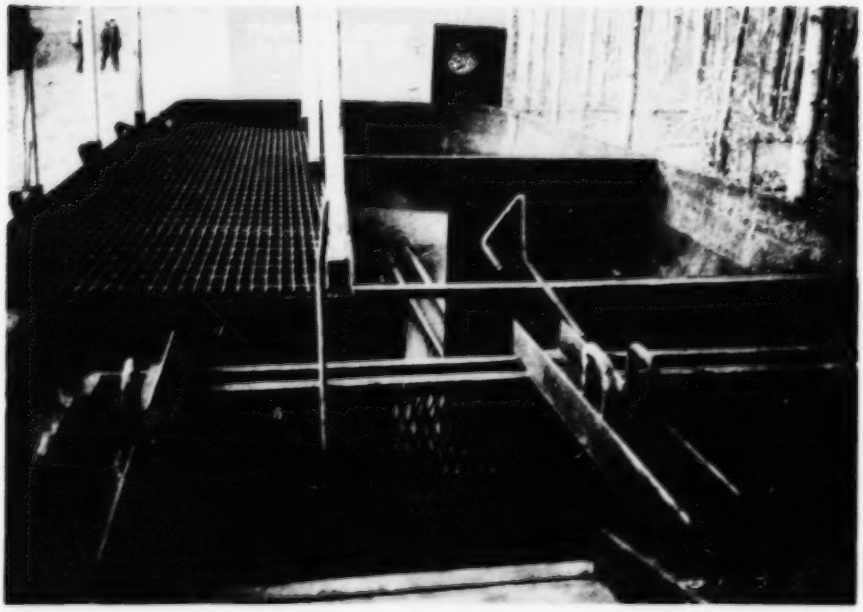
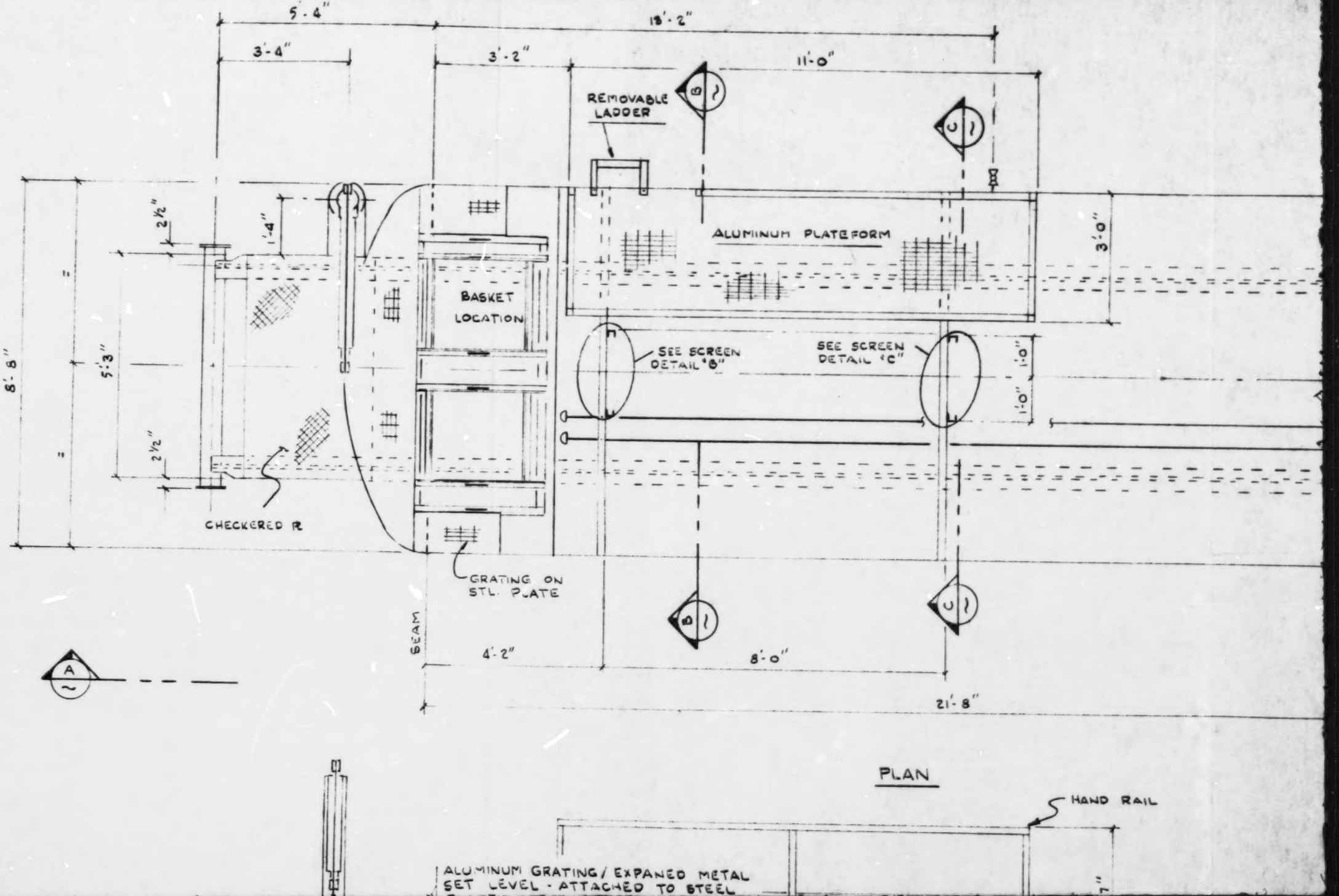
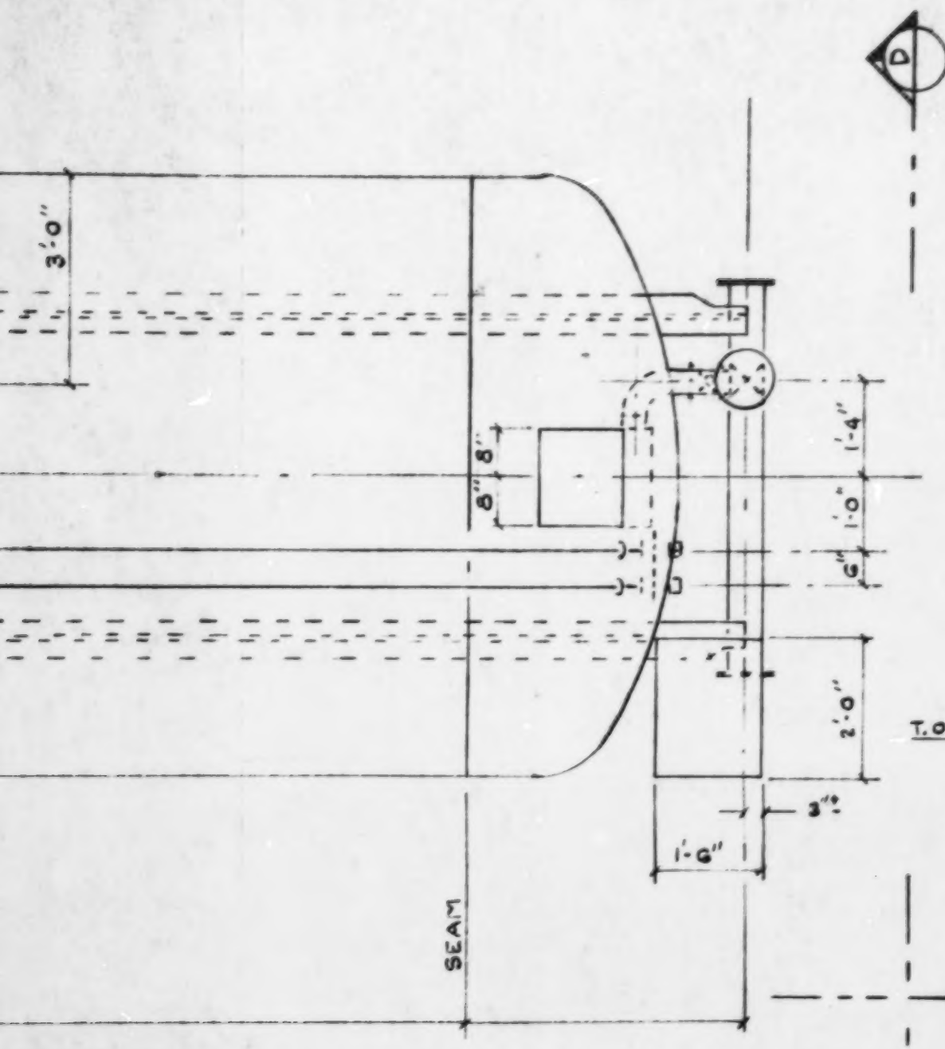
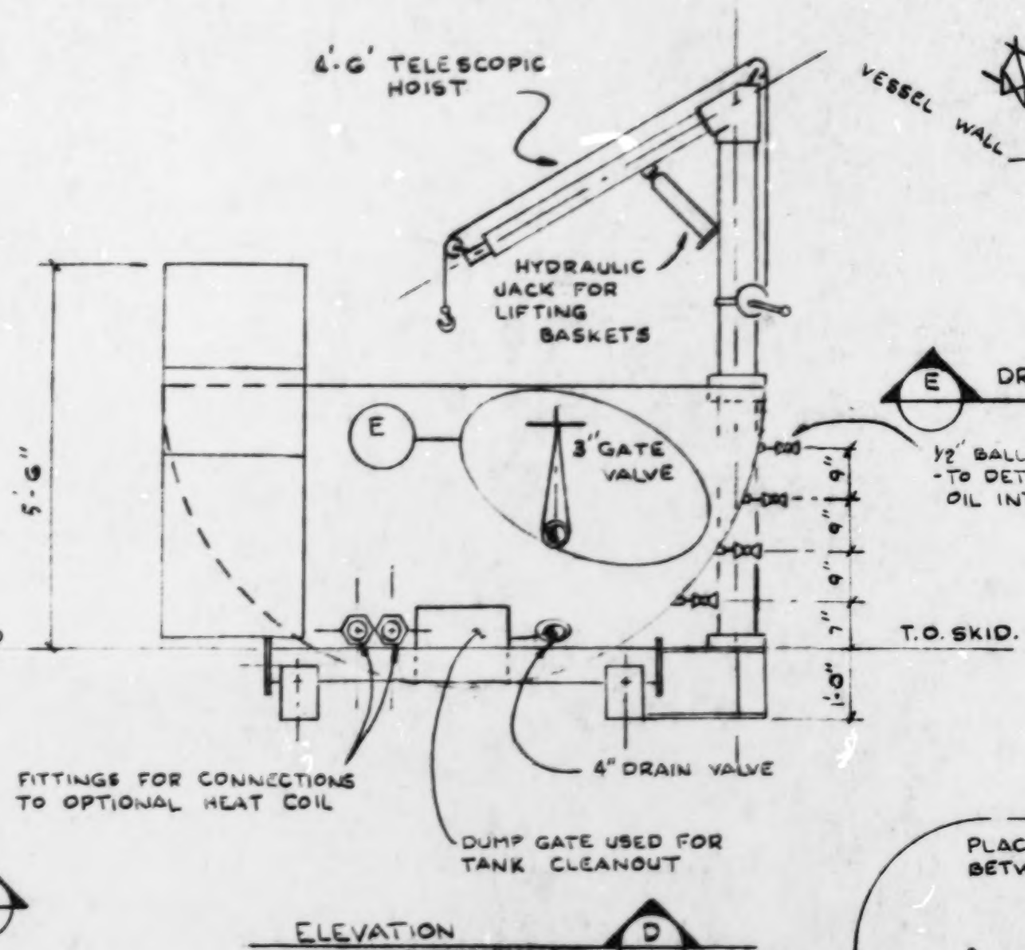
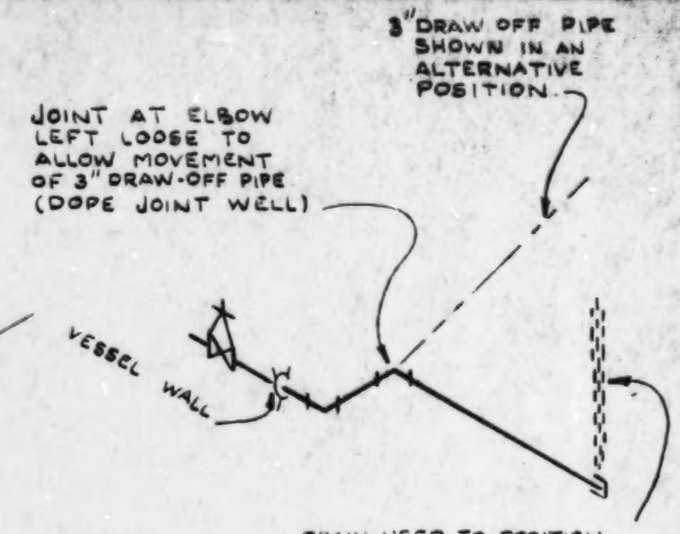


Plate 4. View towards discharge end showing three compartments with dividing baffles and opening for screens between each compartment.


5'-4"
13'-2"
3'-4"
3'-2"
11'-0"
REMOVABLE LADDER
B 2
C 2
ALUMINUM PLATEFORM
3'-0"
2½"
1'-4"
BASKET LOCATION
SEE SCREEN DETAIL "B"
SEE SCREEN DETAIL "C"
1'-0"
8'-8"
5'-3"
2½"
CHECKERED PL
GRATING ON STL. PLATE
BEAM
B 1
C 1
A 1
4'-2"
8'-0"
21'-8"
PLAN
HAND RAIL
ALUMINUM GRATING / EXPANED METAL SET LEVEL - ATTACHED TO STEEL






3" DRAW OFF PIPE SHOWN IN AN ALTERNATIVE POSITION.
JOINT AT ELBOW LEFT LOOSE TO ALLOW MOVEMENT OF 3" DRAW-OFF PIPE (DOPE JOINT WELL)
VESSEL WALL
CHAIN USED TO POSITION HIGHT OF 3" DRAW-OFF PIPE IN ORDER TO DETERMINE SUCTION DEPTH.
E
DRAW-OFF PIPE DETAIL.
N.T.S.
½" BALL VALVE (TYP.) -TO DETERMINED WATER/ OIL INTERFACE.

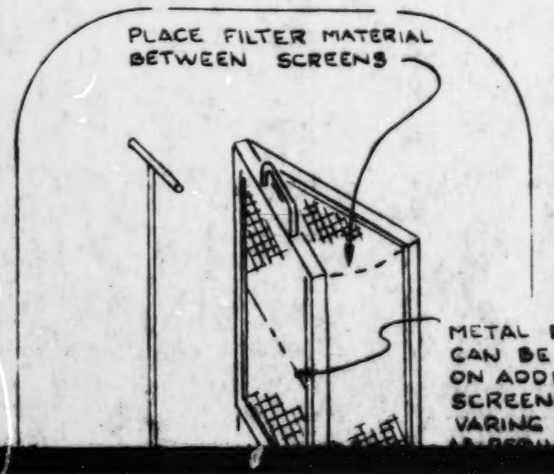
HAND RAIL

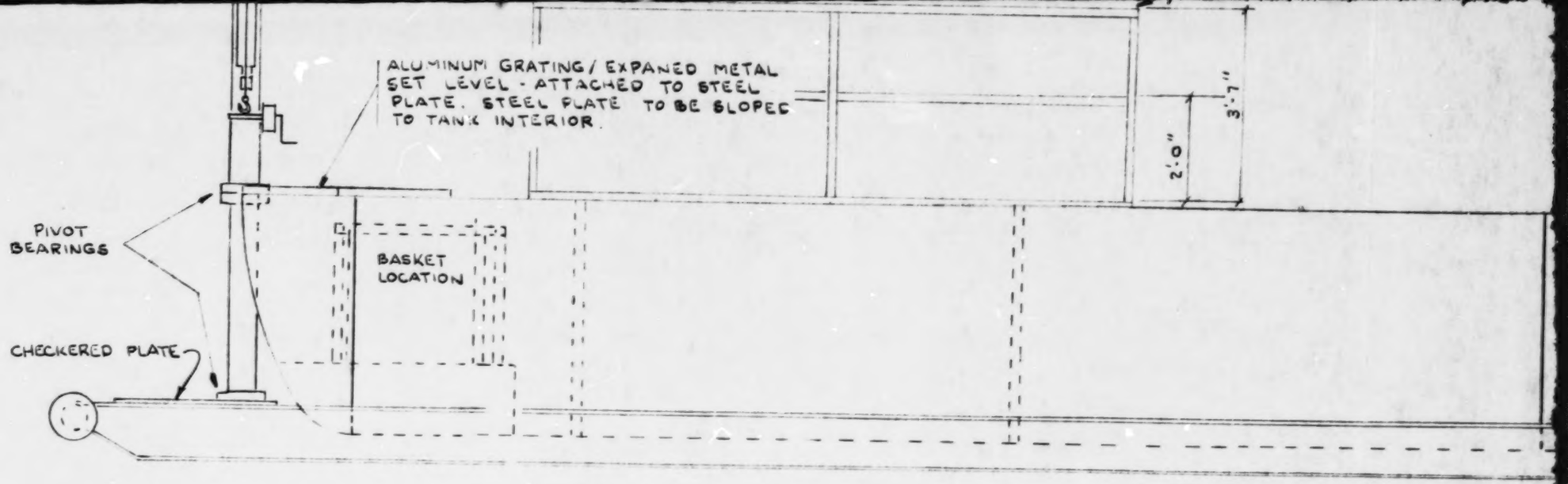
3'-7"

2 PIECE REMOVABLE / INTERCHANGABLE SCREENS TO TRAP DEBRIS. BULK FURNACE FILTERING MATERIAL TO BE ATTACHED TO SCREEN TO INCREASE FILTERING.

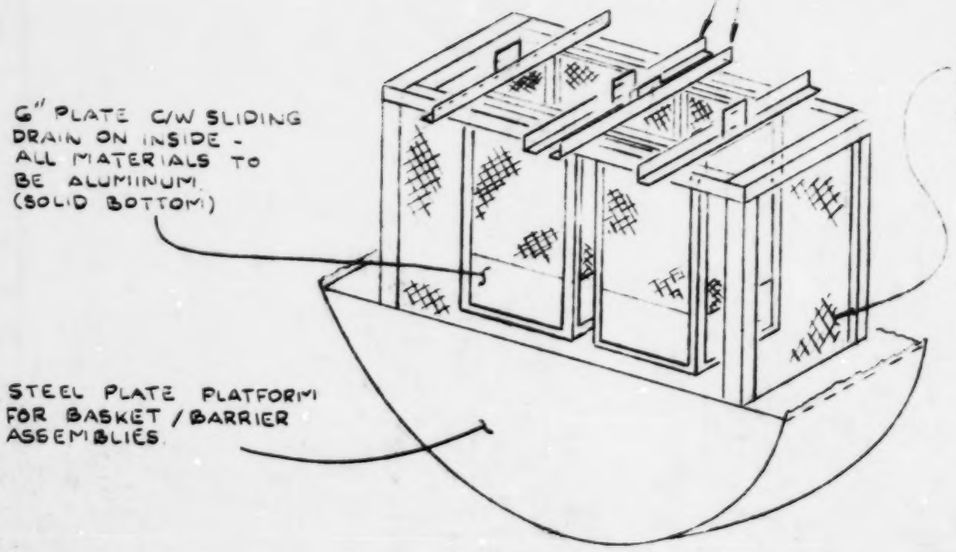
* - END PLATE DETAIL "B" USE OF FILTER MATERIAL IS OPTIONAL.

* - SCREEN / BOTTOM SLIDING PLATE TO BE CONSTRUCTED WITH ALUMINUM MATERIALS.

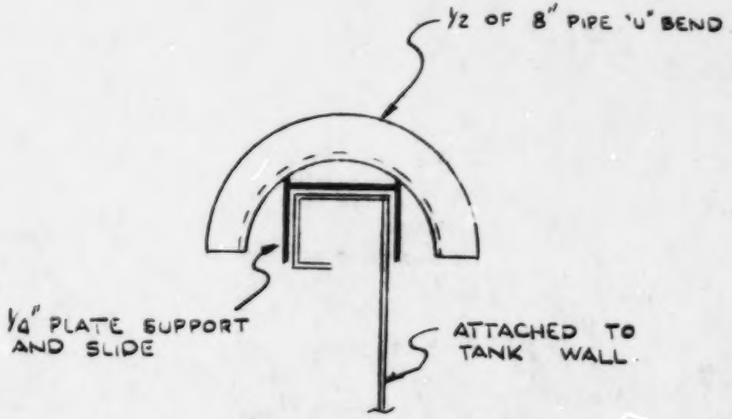



ALUMINUM GRATING / EXPANED METAL SET LEVEL - ATTACHED TO STEEL PLATE. STEEL PLATE TO BE SLOPED TO TANK INTERIOR.
PIVOT BEARINGS
BASKET LOCATION
CHECKERED PLATE
2'-0"
3'-7"

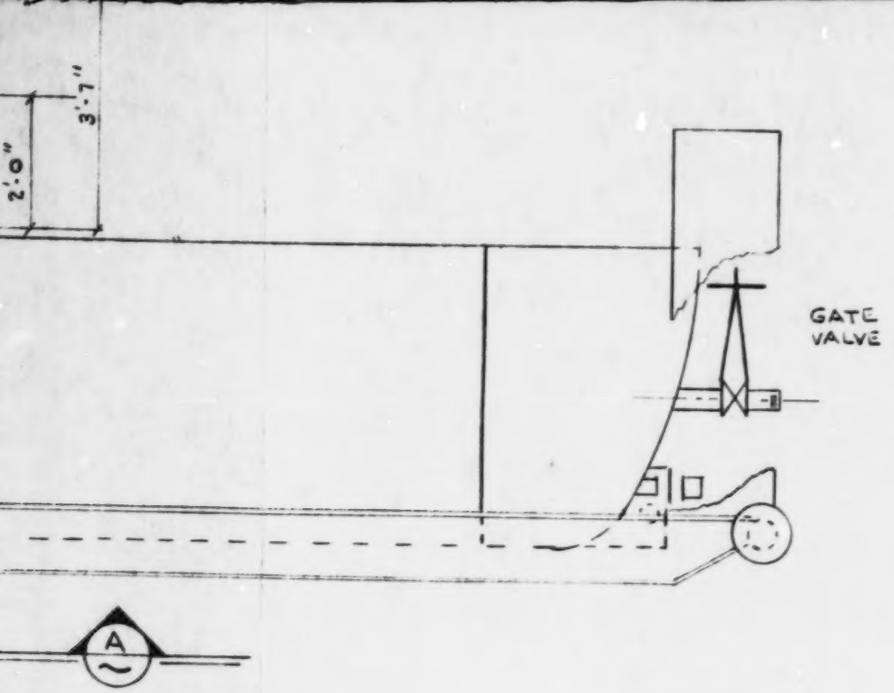
ELEVATION A


REMOVABLE BASKET TO DUMP DEBRIS
- MADE OF ALUMINUM EXPANDED METAL & 1/2" L
6" PLATE C/W SLIDING DRAIN ON INSIDE - ALL MATERIALS TO BE ALUMINUM. (SOLID BOTTOM)
SCREEN BARRIER BETWEEN BASKET & TANK - MADE OF STEEL PLATE & EXPANDED METAL
STEEL PLATE PLATFORM FOR BASKET / BARRIER ASSEMBLIES

BASKET & STAND DETAIL
N.T.S

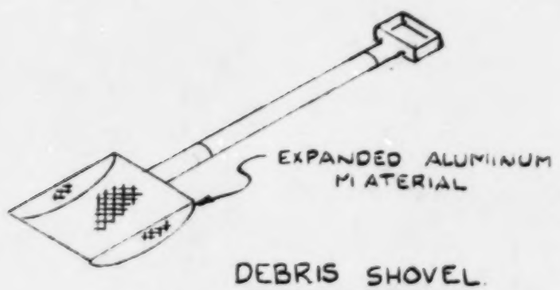


HOSE CRADLE
N.T.S.



" PIPE 'U' BEND

ED TO WALL



DEBRIS SHOVEL

- END PLATE DETAIL "B" - USE OF FILTER MATERIAL IS OPTIONAL.

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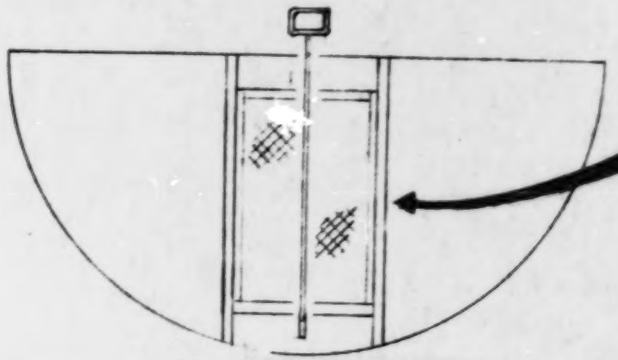
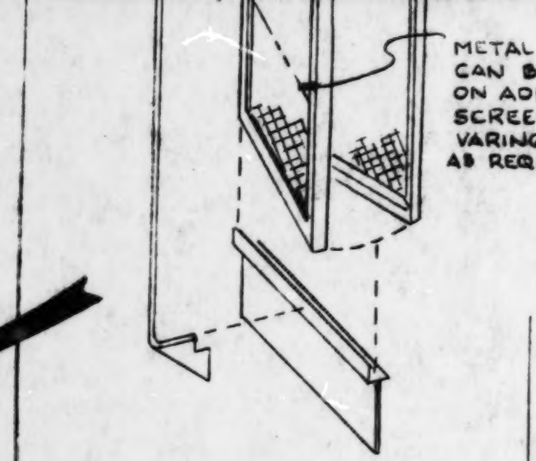


ELEVATION / DETAIL

B C



SCREEN DETAIL

N.T.S.

DISCLAIMER

- NEITHER THE CPA NOR THE PROSCARAC R&D SUB-COMITTEE IMPLYS ANY WARRANTY REGARDING REAL OR PERCIEVED PERFORMANCE OF THE OIL SPILL RECOVERED FLUID RECYCLING TANK.

NO LIABILITY WILL BE ACCEPTED REGARDING THE USE OR MISUSE OF ANY DEVICE CONSTRUCTED FROM THESE DRAWINGS OR VARIATIONS THERE OF.

MODIFIED AND MANUFACTURED FROM 1/2 RAILROAD TANK CAR BY:
REX GRAY WELDING - DRAYTON VALLEY
542-5138

ENQUIRES REGARDING SPECIFIC CONSTRUCTION TECHNIQUES OR RENTALS OF THE ACTUAL PROTYPE CAN BE DIRECTED TO MR. GRAY OR D. WAISMAN 297-3730

No.	DESCRIPTION	DATE	DWG. No.	TITLE

REVISIONS | REFERENCE DRAWINGS

PROSCARAC RESEARCH AND DEVELOPMENT SUB-COMMITTEE

OILSPILL RECOVERY FLUID RECYCLING TANK

DWN. BY	DATE	PROJECT	DWG No.	REV
J.S	88-03-23			A
CHKD.	APPD.	SCALE 1/2" = 1'-0"		